# Integrated Water Quality and Aquatic Communities Protocol – Wadeable Streams

# Appendix E:
# Standard Operating Procedure for:

# Icom IC-F70DT Radio Guide

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**Draft Version 1.0**

**Revision History Log:**

| Previous Version | Revision Date | Author | Changes Made | Reason for Change | New Version |
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This guide has been written to give field crews basic knowledge of how to use the Icom radios provided. However, it is recommended that crews also read the instruction manual, although much of the material presented is for advanced use (e.g., radio networks, stun functions, etc.) The sections of the manual most pertinent to the end-user are sections 1-3, 5, 6, and 10.

The use of this radio is for "occupational use only" – these radios are not to be used for general population use. Treat these radios with respect and use accordingly.

During use in the field, the provided leather case should be used at all times to help protect the radio from the elements and general wear and tear.

When issued a radio, you should receive:

- One Icom Radio (IC-F70DT)
- One antennae (should be preattached)
- One Leather belt case, with snap retention and belt clip
- One or two BP-254 battery pack(s) – 2 if remote areas are expected
- One BC-119N Desktop Battery Charger
- One BP-237 AA battery pack

## Icom Overview

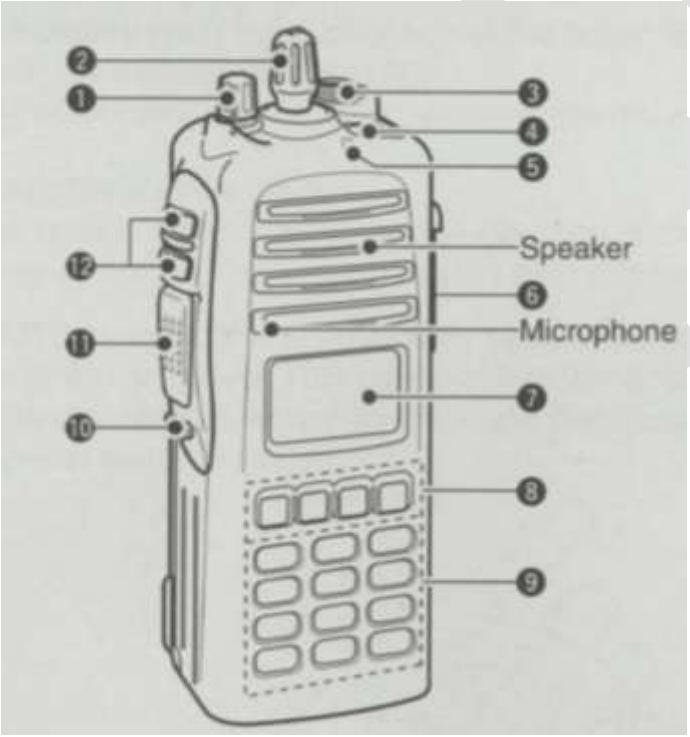
The Klamath Network has eight Icom FC-F70DT VHF two-way radios for use by the field crew. These radios are light-weight, powerful, fairly robust to field use, and provide a safety measure and logistical contact to local park staff.

It is the responsibility of the field crew to familiarize themselves with the use and operation of the radio unit. **It is further the responsibility of the Field Crew Leader to communicate with the local park staff to establish local radio procedures** (e.g., check-ins (if required), call signs, etc.).

Any problems with programming or operations should be reported to Klamath Network office staff as soon as possible.

### *Radio Specifications*

*Maximum number of channels*: **256**
*Power:* **5 watt**
*Operational Range:* **5 to 7 miles (8 to 11 kilometers)**, but highly dependent on local conditions.
*Battery Life*: **14.5 hours** of continuous operational use (intermittent crew use should extend this).




**1. Power and Volume Control**
**2. Rotary Channel Selector**
**3. Antenna Connection**
**4. Emergency Switch**
**5. Busy/Transmit Switch (Green = receiving/squelch open) (Red = transmitting)**
**6. Connector cover**
**7. Display**
**8. Function Keys**
**9. Keypad**
**10. "Monitor Switch" – programmed to "user set"**
**11. PTT – Push To Talk**
**12. Up/Down Switches**

### *Basic Operation*

1. Turn the radio on by rotating knob (**1**) clockwise (this also controls volume).
2. Rotate knob (**2**) to the appropriate channel (confirm channel on screen [**7**]).
3. Push PTT button (**11**).
4. Talk, holding the transmitter upright and 2 to 4 inches from mouth.
5. Release PTT button (**11**) to receive.
6. Simple!

### *Changing Channels*

Depending on the park, location within a park, or the location the radio was last used, the channel zone and channel may need to be changed for proper usages (Contact local park staff to establish proper channels for usage).

Establish the proper zone (see Table 1):

1. With the radio on, depress button "$P_0$" from the Function Keys (**8**).
2. Use the Up/Down Switches (**12**) to scroll through the zones.
3. The changing zones will be displayed on the screen (**7**).
4. Upon finding the correct zone, depress "$P_0$" to set the zone.

Changing the channel within the zone:

1. Turn the Channel Select Knob (**2**) until you reach the proper channel.

### *In Emergency Situations*

If you are in an emergency situation (e.g., life threatening, broken limb(s), mountain lion gnawing on you, etc.), and you are unable to reach park staff, you have two options:

1. Depress the orange button (**4**). This sends an emergency signal on the currently selected channel (no voice necessary). If you are set on the wrong channel, no one may hear you.
2. Switch the zone to one of the counties closest to you (e.g., Jackson County or Shasta County). Within these zones, there are a variety of sheriff and fire fighting settings. Attempt communication with any of these entities.

### *Useful Information*

There are additional tidbits of radio usage that may help the radio operator.

**Be patient** – It takes time for a voice message to be received and transmitted. When talking, depress the PTT, wait a second, and then begin to talk. When you are done talking, finish by saying "OVER." This lets the receiver know that you are done talking, so that they can reply. The receiver should wait a few seconds before replying.

**Push To Talk** – Do not depress this button unless you are actively engaging in talk. Holding this button down will prevent others from talking on this frequency. You may anger people if you abuse the radiowaves.

**Battery life** – the battery should last 14 hours or so, for typical usage. If not transmitting or receiving, it should last considerably longer. Keep the battery charged as much as possible. Note that the battery can be charged detached to the radio if needed (e.g., charging a back-up battery). There is a battery life indicator on the display screen in the upper right hand corner. If you anticipate needing longer battery life, contact the Klamath Network office staff for extra batteries.

**Signal strength** – there is an indicator in the upper left corner of the display.

**Scan** – Function key "$P_1$" is set to scan. Depressing the button will cause the radio to scan all zones and all channels (except for NOAA weather forecast zone). Note that if squelch is set low, it may "pick up" static.

**Squelch** – Squelch is controlled through "user settings." Squelch is basically noise reduction, hiding the background static over a certain threshold. Depending on the channel and your location, the amount of static that needs to be reduced can vary. Generally, increase the squelch until the static just fades out. Changing the squelch will affect all channels in all zones. To set or adjust squelch, follow this procedure:

1. With the radio on, depress the "Monitor Switch," (**10**), until the radio beeps.
2. This will enter into a series of screens that the user can adjust; there should be little need to change any, except for the squelch.
3. Pushing the same button will cycle through options, push repeatedly until SQL appears. A number will be next to it, from 0 – 255. If you are hearing just static, increase the squelch. If you are not hearing transmissions, decrease the squelch.
4. Use the up/down switch (**12**) to adjust the squelch.
5. Push and hold the "Monitor Switch" (**10**) until the radio beeps again and goes into standard operating mode.
6. The effect of changing the squelch will only be heard when you go back into the standard operating mode (e.g., while changing the squelch, you will not get real-time feedback on your changes).
7. Adjust as necessary.

**Light** – You can create a backlight on the screen by depressing button "$P_2$."

**Compander** – The compander function can create a clearer signal, if both the receiver and transmitter are equipped with this function. Compander can be turned on and off by depressing button "$P_3$."

**Waterproof** – Although the radio is waterproof – down to 1 meter for 30 minutes, do not test this. The radio is very expensive (about 2 weeks of pay for a field technician!).

**NOAA Radio** – There are seven different NOAA radio weather forecast frequencies programmed in the radio. If you can pick up a signal, the forecast should be applicable to your area.

### *Troubleshooting*

Although every attempt has been made to ensure that the radios are properly functioning, problems may arise.

*"The radio does not turn on."*

- Confirm that the battery case is fully snapped into place. Depress the latch on the bottom of the radio, and reinsert the battery.
- Change the battery. If the radio is equipped with a battery unit using AA batteries, change these batteries.

*"I can't hear any transmission, and nobody responds to me."*

- Antennae may be loose – tighten it up.
- You may be on the wrong channel – try changing channels, and repeat.
- Squelch may be to high – adjust squelch to a lower setting, and repeat.
- You may be out of range – either try to move closer to the base station or repeater, or move to higher ground to establish line of sight.

For additional problems, return radio to Klamath Network office staff.

**Table 1.** Currently assigned channels and zones for Klamath Network Icom Radios (as of 2 July 2009). Names are derived from park supplied lists, and are set up according to park specifications (e.g., "channel 1 on a CRLA radio should be channel 1 on KLMN radio, when set to Zone 1).

| | Zone 1 | Zone 2 | Zone 3 | Zone 4 | Zone 5 | Zone 6 | Zone 7 | Zone 8 | Zone 9 | Zone 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | **CRLA** | **LABE** | **LAVO** | **ORCA** | **REDW** | **WHIS** | **KLMN LE** | **NOAA** | **Jackson Co.** | **Shasta Co.** |
| Channel 1 | CLNPWA | LABE Local Transmitter | LNP Direct | ORCA Main | NPS Direct | WHIS 1 | CLNPWA | NOAA 1 | JackSheriff1 | CDF dis |
| Channel 2 | CLNPSC | LABE Schonin Repeater | LNP Peak | ORCA Repeater | NPS Crescent City | WHIS 2 | CLNPSC | NOAA 2 | O.P.E.N. | CountyNet |
| Channel 3 | | | LNP Hark | | NPS Requa | WHIS 1 N | LABE 2 | NOAA 3 | JackSheriff2 | CottonwoodFi |
| Channel 4 | | | LNP Pros | | NPS Red Mtn. | WHIS 2 N | SISK SO | NOAA 4 | AshlandPOdis | AndersonFi |
| Channel 5 | | | LNP Tactical 1 | | NPS School House | | REDW DIR | NOAA 5 | AshlandFDdis | ReddingFDdis |
| Channel 6 | | | LNP Tactical 2 | | NPS Tactical | | REDW REP | NOAA 6 | AslandSkiPa | ReddingFDta1 |
| Channel 7 | | | NIFC 1 | | NOAA Weather | | LNP PEAK | NOAA 7 | PhoenixPOdis | ReddingFDta2 |
| Channel 8 | | | NIFC 2 | | CDPR Direct | | LNP HARK | | PhoenixPOtac | ShastaCoSher |
| Channel 9 | | | LNF Dir | | CDPS Pt. St. | | WHIS 1 | | TalentPOdis | ShastaCoStac |
| Channel 10 | | | LNF Pros | | CDPR Requa | | WHIS 2 | | TalentPOtac | ForestNet |
| Channel 11 | | | LNF Trnr | | CDPR Red Mtn. | | DOI LE | | SoCountFD | ForestNetRep |
| Channel 12 | | | USFS A2G | | CDPR Prairie | | KLMNTAC1 | | MedfordPOdis | TravelNet |
| Channel 13 | | | CALCORD | | | | | | MedfordPOtac2 | USFSTac1 |
| Channel 14 | | | TGU LOCL | | | | | | MedfordPOta3 | |
| Channel 15 | | | | | | | | | MedfordFDdis | |
| Channel 16 | | | | | | | | | NOCountFD | |